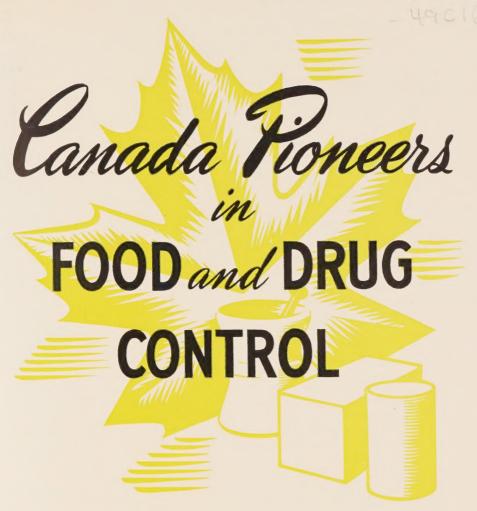
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The Story of The Food and Drug Directorate

by

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DEPARTMENT OF NATIONAL HEALTH AND WELFARE

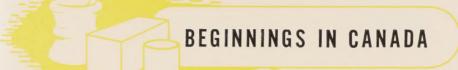
INTRODUCTION . . .

In an agrarian community whose people live on the produce of their land and clothe themselves from the wool of their flocks, commerce in food is on a very limited scale. In these circumstances, adulteration of consumables is virtually unknown. Such was the case in the Province of Quebec during the seventeenth century. Laws about food there were, but they dealt almost entirely with rationing and prices. For example, in 1628-29, owing to the blockading of the St. Lawrence at Tadoussac, food was so scarce that the daily ration of peas was fixed at seven ounces per man and during the winter of 1629 this was cut in half, while ten eels cost one beaver skin.

In the early days, most of the provinces of what is now Canada had laws respecting the quality, grading, packing and inspection of certain foods. Pickled beef and pork were graded as "mess", "prime" and "cargo" under the supervision of inspectors. Pickled fish was to be one kind in each barrel and there were three grades, the third being the poorest and thinnest of the catch. Specifications were made for bread, including what it should contain, and supplying short weight was punishable by fines of from one to five shillings.

Food and drug legislation, as we know it today, dates from about the middle of the nineteenth century. In 1850, in England, Dr. Arthur H. Hassall began to examine food microscopically and disclosed some very disconcerting conditions. Sugar was teeming with insect life, 95 per cent of coffee examined was adulterated, candy was coloured with poisonous metallic pigments, and so on. These revelations so incensed public opinion that laws were enacted in England prohibiting adulteration.

WITHORAWN FROM VICTORIA
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Shortly after Confederation, there was a movement in Canada to banish liquor. The movement had its supporters as well as its opponents. The champions of liquor, naturally not averse to an occasional sip, thought it was impure spirits, rather than spirits as a class, that were responsible for all the melancholy results reported. Therefore, in 1874, assent was given to a bill entitled 'An Act to Impose Licence Duties on Compounders of Spirits and to Amend the Act respecting Inland Revenue and to Prevent the Adulteration of Food, Drink and Drugs'. This Act became operative on January 1, 1875.

The Act provided for the appointment of competent persons as analysts of food, drink and drugs, to examine samples procured by inspectors. Adulterated material was to be seized and the vendor, on conviction was liable to a fine or imprisonment, with or without hard labour.

In March 1876, four analysts were appointed, one each in Halifax, Quebec City, Montreal and Toronto. Additional appointments were made later in Saint John, St. Hyacinthe, Que., Ottawa, London, Winnipeg and New Westminster. The London analyst was the father of Sir Charles Saunders of Marquis Wheat fame. Remuneration was on a fee and allowance basis and could not exceed \$2,000 a year.

The first annual report on the adulteration of food appeared in 1877 and revealed all too clearly the need for such official concern, as the table over-page indicates.

Difficulties soon became apparent. In the first place, there were no standards of purity. What one analyst might consider genuine, another might reject. Many years were to pass before sufficient work had been done to enable fair and reasonable standards of purity to be established. Secondly, this was entirely a new field of work and while the analysts may have been competent chemists according to the standards of their day, they were unfamiliar with food chemistry; and, moreover, there was no test of fitness for their work. It is not surprising that results were conflicting and caused the Commissioner to stay his hand in taking court action for a number of years. Nevertheless, the knowledge that such officers were about and that the results of their analyses were published, together with the vendor's name, was, in itself, a deterrent and responsible, to a large extent, for the improvement in the situation.

In 1878, the Act was amended by broadening the definition of "adulteration" and, incidentally, by legalizing the sale of oleomargarine which, however, was banned from 1886 until 1917. In the latter year the manufacture and sale of margarine were permitted by an Order-in-Council under the War Measures Act and the concession remained in effect until 1924.

Name of Article	Samples Analysed	Samples Adulterated	Samples Unadulterated
Allspice Bitters (Quinine Wine) Cloves Cinnamon Cocoa and Chocolate Coffee Ginger Mustard Pepper Pepper Potted Meats Spirits Milk Sugar Sweets Tea Unenumerated Articles	3 5 2 10 6 6 19 3	2 4 3 5 9 6 6 17 — 34 3 4	3 1
Total	180	93	87

Of these 180 samples, 51.5 per cent were adulterated. The following year the proportion fell to 50.6 per cent and in 1881 it was down to 25 per cent.

Parliament in those days was very much alive to the problem of adulteration. It was pointed out in the Senate that 25 per cent adulteration in food represented a loss to the population of \$50,000,000 a year. The same speaker noted that, among drugs, only quinine wine had been examined up to 1881 and urged greater attention. In the House of Commons, a Member gave such an effective address on the dangers of adulteration that the Minister, who was about to introduce a bill on the subject, felt that no speech from him was necessary.

The bill in question was an amendment to the Adulteration Act. Its main purpose was to provide for the appointment of a Chief Analyst in Ottawa whose primary function would be to confirm results obtained by district analysts before prosecutions were begun. Much discussion ensued as to the princely salary of \$2,000 per year that was to be paid to this officer who had to be, of necessity, a man of eminence in his profession. The bill was passed in 1884.



In the light of these events it is interesting to consider the quality of food our grandfathers and great grandfathers ate, as revealed in reports on the operation of the Adulteration Act during the first decade.

MILK—The charge that milk contained chalk to give it body was not substantiated by the analysts' findings. While we may not accept their verdict as to genuineness in each case, because of the absence of a legal standard and because of the mass of data that has been collected since, it is very clear that adulteration took two forms, (1) the skimming of cream and (2) the addition of water. The present standards call for a minimum of 3.25 per cent of milk fat



and 8.5 per cent of solids not fat. In England, the minimum for fat is three per cent and, where prosecution is entered against milk containing less than this amount, the onus of proof of genuineness lies with the defendant. Even the cow may be brought into court as evidence.

In 1876, about 60 per cent of the samples of milk examined in Canada were adulterated. Some people passed off skimmed milk as pure milk, while others skimmed the evening milk and mixed the residue with the morning milk for sale as "milk". Town milk was usually inferior to country milk, although it cannot be said that all adulteration took place within the town walls or from the town wells. Sometimes, too, colostrum was added to good milk to give it an attractive colour. Irish folk were said to be eager to have such milk for making pancakes because it gave them a rich appearance. In 10 years the adulteration of milk fell from 60 per cent to 15 per cent and, in the course of time, the present system of having municipalities look after the milk supply became general throughout Canada.

BUTTER — In the early days, the main adulterants of butter were excess curd, salt and water. The use of foreign fat was infrequent although suet and lard were sources of temptation, especially in springtime, before the cattle went into pasture. Lard, then as now, was about half the price of butter. At that time of year, too, butter was very pale in colour and one ingenious soul conceived the idea of washing the salt and colour out of

salted butter and mixing it with hogs' lard for sale as "Spring Butter!"

Much of the butter was poorly made and cleanliness was not recognized as being next to godliness. Returned tubs, which had contained rancid butter, were refilled without being properly scoured. Dairymen were told that only new fir tubs should be used and only then after scalding with an infusion of raspberry twigs.

The leaving of excess curd in butter and the mixing in of as much milk as the butter would absorb tended to accelerate rancidity, which was a common defect of the butter of those days.

CHEESE — The records indicate that the cheese of our grandfathers' day was, as a rule, quite genuine, but poorly made and liable to decay because of insufficient removal of whey and ineffective ripening. The degree of purity is interesting because of the extensive use of lard and margarine cheeses on the United States market.



BREAD AND BAKERY PRODUCTS — Little fault was found in bread, flour and biscuits by the early analysts. Needless to say, bakehouses were hardly as sanitary and as spotless as they are today and the practice of working the dough with the feet left much to be desired from the standpoint of hygiene.

TEA, COFFEE AND COCOA — Compared with today's standards, the extent of adulteration of tea was shocking. Not only were worthless foreign leaves substituted, but exhausted teas were faced with prussian blue and gypsum. Tea sweepings supplied to lumber camps sometimes contained as much as 60 per cent of sand. Tea dust was always adulterated. China tea as a rule was the poorest and Japan tea was very little better.

Coffee was also grossly adulterated. The samples examined in the earlier years contained from practically none to 50 per cent of coffee, mixed with varying amounts of chicory, and roasted wheat, peas, beans and, in one case, ground crusts. In spite of these facts, the coffee might be carefully marked "Rio" or "Extra quality Java". Nevertheless, if one paid 50 cents a pound, equivalent to about \$1.50 today, one could buy coffee that was pure.

Likewise cocoa might contain anything from 20 to 60 per cent of cocoa beans, the remainder being starch and sugar.

SUGAR AND CANDY — Sugar, seventy years ago, was frequently of very low quality and contained excessive moisture and glucose as adulterants.

Candy on the whole was fairly pure and free from such poisonous pigments as vermilion, red lead, prussian blue or paris green, so frequently found in England.

CONDIMENTS — Condiments, such as mustard, pepper and spices, had a very bad record. Adulteration was rife. The consistency of such adulteration led to the belief that it was practised according to some generally accepted formula.

The adulterant for mustard was flour coloured with turmeric; for pepper, flour slightly roasted to disguise the pale colour. Spices nearly all contained added starch, flour and peameal. Ginger often had judicious additions of cayenne to give adulterated material the necessary tang.

It was pointed out in 1883 that two-thirds of the spices imported into Canada were in the unground condition and, therefore, the adulteration took place in Canadian spice mills. The situation was so bad that the licensing of spice-millers was seriously considered. Part of the responsibility, however, lay with the public who demanded an article at a price at which it could not be supplied in a pure state.

MEATS, FRUITS AND VEGETABLES — Seventy years ago, the idea that sausage might be adulterated with preservative, excess cereal or excess water had not arisen. There appears to be no information on fresh meat, for all the items examined were either canned or otherwise processed. These, however, were often poor: the juice had first been boiled out of the meat to make up soup and the remainder packed in a gelatinous paste, with brown sauce, and sold as potted meat. Sometimes the products contained too much fat or were off-flavour or partly decomposed.

In addition, lead, resulting from the action of juices on the solder on the cans, was found in dangerous amounts. Such contamination also occurred in canned fruits and vegetables, lead and tin both being found in solution and in drops among the contents. Soldering was very carelessly done.

In passing judgment upon the food of our greatgrandfathers and grandfathers we must not be unmindful of the facts that food and drug analysis was in its infancy and that the first analysts were pioneers in their field in this country. Without standards to guide them they were as men groping slowly towards that clearer light that shines upon us all today. Methods of pro-

cessing, too, were crude and dangerous contamination, both mineral and bacteriological, was still, to many, an unopened book. To these new truths the Annual Reports of the Department of Inland Revenue led the manufacturers and processors and the general public so that, as time went on, there was gradual improvement and less danger of acute poisoning. Limited as they were in thought, equipment and knowledge, we should err indeed if we failed to give these early analysts much credit for what they achieved with the means at their disposal.





THE FIRST CHIEF ANALYST TAKES OVER

The first Chief Analyst, H. Sugden Evans, was an eminent pharmaceutical chemist from England. On his arrival in Canada in 1885 and while his laboratory in the West Block of the Parliament Buildings at Ottawa was being constructed and equipped, he visited all the local analysts, except the one in Winnipeg, in order to get as complete a picture as possible of the task before him.

Having discovered that one of the greatest weaknesses of the existing system was the lack of uniformity, he called a meeting of these analysts in Ottawa shortly afterwards to discuss a common basis of operations. Not only was the meeting successful in this regard, but it also laid down a programme of future work and agreed on a new system which relieved the analyst of knowing the name of the vendor whose merchandise was under examination. Mr. Evans felt that such meetings should be held annually. The machinery was now in order for proceeding against persons who broke the law.

In his one and only report, for death overtook him

in the spring of 1886, Mr. Evans wrote:

"It must be conceded that few national outlays can be more productive to a country's welfare and stability than that which tends to ameliorate the health of its people; whether it be a development of manly vigor, intellectual and mental attainments, or the securing of sound, wholesome and invigorating food and pure medicines—in a word, the maintaining of the mens sana in corpore sano of the nation. To this end the due and regular inspection of food supplies of the country very largely contributes, and although there must necessarily be a large expenditure at the outset, which does not immediately show any results, yet the operation of the Adulteration of Food and Drugs Act in this country has produced a conspicuous abatement of the frauds practised on the public, whereby the very staff and support of life was meanly degraded."

The policy of the Department had been to search for adulteration among manufacturers and wholesale distributors rather than in the retail trade, but Mr. Evans incisively pointed out — "at the same time as it is laudably desired to punish only the guilty, it cannot be logically sustained that the retail vendor is not presumably cognizant of the adulteration, and therefore

equally culpable." He went on:

"He is—or if not, he is unfit to carry on a responsible business—aware of the current market value of the commodities at wholesale, for less money than the current market rates, he should be held responsible for his so doing, as much in the case of adulterated goods as that of stolen property, and the plea of ignorance of the quality should not serve him.

"To put the vendor beyond excuse, notice is now served on him when adulteration has been reported, notifying him of the fact, and that a repetition of such sales will be followed by prosecution. This course is calculated to act as a deterrent."

The Department sought to inform the people of:-

1. fraud perpetrated upon them;

2. the prejudice to health caused by such adulteration;

3. the pecuniary loss to themselves.

In addition the Chief Analyst envisaged the Ottawa laboratory as a centre for the investigation of methods of analysis and for the identification of new adulterants.

IN THE FIRST OTTAWA LABORATORY

The food and drug laboratory, fitted up in the West Block of the Parliament Buildings, was the first government chemical laboratory in Ottawa. Incidentally, in 1885, there was neither Experimental Farm nor separate Customs Laboratory at the seat of Government.

About this time, amendments to the Adulteration Act provided for the control of commercial fertilizers and for an examination for public analysts prior to their appointment. In view of the extension of the Act, the selection of Thomas Macfarlane, a widely travelled Scot with an extensive knowledge of fertilizers, as a successor to H. Sugden Evans, was a very happy one.

The increase of work was stretching the annual appropriation for the laboratory to the limit. In 1884, Parliament voted \$12,000, in 1885, \$20,000, and for the next decade, \$25,000 each year. Yet, as late as 1896, one Member of Parliament declared the work could be done by one chemist at \$2,000 a year. Today

the appropriation is about \$550,000.

A conference of local analysts, held in Ottawa in 1887, drew up a programme for the systematic examination of milk, procured directly from the cows, the milking being supervised by the analysts. The object of the project was to secure reliable data upon which a legal standard for milk in Canada could be based. The report of the investigation was published as the first of a series of 440 bulletins which were to appear during the next 33 years.

Not only was the parliamentary vote too meagre to meet the needs of a rapidly expanding organization but the space available for the laboratory in the West Block was insufficient. Accordingly accommodation of a kind was found at 319 Sparks



H. Sugden Evans, Canada's earliest Chief Analyst.

Street where Dr. Anthony McGill, who had recently joined the staff and was destined later to be its Chief, made his headquarters. Referring to these premises, Dr. McGill remarked in a letter dated November 12, 1888 — "At this time of writing, the place is shaking by the pitching and rolling of barrels so that I can scarce write". Nevertheless, it served its purpose for the time being until better quarters could be obtained.

As an example of the difficulties that attend the enforcement of a new Act, it is recorded that the Adulteration Act defined food as "any article used as food by man or by cattle". This would appear to mean foods per se and not ingredients of foods. In fact, a Montreal judge dismissed a charge that baking powder was adulterated on the ground that it was not a food. The remedy

was an amendment to the Act.

By the end of 1889, twelve bulletins had appeared and sufficient time had elapsed to judge the reaction of the public to them. The bulletins had met with considerable favour. Newspapers had published the results of analyses and had brought the work of the laboratories to public notice. The disclosure of the identity of vendors whose merchandise had been found adulterated was particularly helpful although it was resented in some quarters. The policy of country-wide surveys provided data for the establishment of legal standards for food other than milk. By this time, the staff of the laboratory had increased to three assistant analysts and two clerks.

During these years many difficulties were encountered. Failure to stir milk before sampling led to alarmingly divergent analyses. In another case, an inspector was suspended for asking

for "a sample of milk for analysis". An analyst returned coffee containing roasted peas and watered milk as genuine. Such incidents were due to the fact that the appointment of local analysts was under the old patronage system, that their laboratories in some cases were ill-equipped and that the help they employed

was the cheapest and therefore incompetent.

Nevertheless, progress was made in Ottawa. In 1898, there was established a separate Customs laboratory which today is under the supervision of the National Research Council. In the Food and Drugs Laboratory, in addition to food and drugs, every fertilizer in the country valued at over \$10 a ton was analytically checked every year, the Marine Department sent in purchasing samples of oils, soaps and paints and work was done under the Fraudulent Markings Act. Until 1898 the laboratory did all chemical work for the Government, except that carried out at the Central Experimental Farm.

It is not surprising, then, that water supplies came under notice. Dr. McGill studied the Ottawa river in all its moods, taking and analysing samples of water at points all the way from Aylmer to Ile Perrot, as well as water from the Richelieu, the Magog and the St. Lawrence Rivers. Well water and lake waters all over the country were reported upon, even as far away as the Northwest

Territories.

The end of the century saw the laboratory continuing to flourish. Seventy-three bulletins had been published, dealing with such items as liquors, wines, tea, cocoa and chocolate, milk, baking powder, drugs, spices, fertilizers and water. The Adulteration Act had been made more effective by a number of amendments, but legal standards for only one item had been established, namely, for tea.

A NEW CENTURY-NEW LABORATORY

As the nineteenth century drew to its close, the laboratory accommodation in the West Block and on Sparks Street was proving inadequate. In addition, there was a fire hazard and Inland Revenue employees took exception to the odours proceeding from the practice of chemistry. In fact, plans for a separate laboratory building on Cliff Street (now disappeared) had been prepared some years before but their fulfilment had been delayed by a business depression. In 1900, the Government rented a new brick building at 317-321 Queen Street. The ground floor was occupied as a methylating warehouse and the laboratory was housed on the second floor. This new laboratory compared very favourably with similar establishments at that time. Here the laboratory remained until 1933.

As has already been indicated, some of the work of local analysts was unreliable and, shortly after 1900, no new appointments of this type were made. As the incumbents died or resigned, their laboratories were closed and the work concentrated in Ottawa. During these years the Ottawa Laboratory was gaining an enviable reputation for the work carried on and the bulletins it published. The Association of Official Agricultural Chemists in Washington assigned Dr. McGill the task of devising methods for the analysis of cereal foods. This resulted in a notable investigation of breakfast foods. Some of the names of these foods, viz., "Life Chips", "The King's Food", would not be permitted today.

Canned goods were frequently blamed for cases of sickness. Canneries, in those days, were not inspected and were, as a rule, not as clean as they are today. Smoking and tobacco chewing were prevalent; impure water was not unknown; and sometimes syphilitic persons were employed. Solder was still being dropped into cans; in one case, over half an ounce of loose metal was found. Preservatives, now illegal, were used, and sometimes

the contents were rotten.

Jam, maple products and honey were frequently adulterated. In one case, strawberry jam contained no strawberries at all! Things were so bad that the Minister had to call jam manufacturers together and lecture them severely. Maple syrup was often made from ordinary cane sugar and confectioners' glucose. Likewise, honey was often the product of the sugar cane and not of bees. Indeed, one man was alleged to have been selling such an article for 20 years and to have been able to pay the premium on a \$40,000 insurance policy out of his profits. These are only a few examples of what the laboratory encountered.

A NEW PILOT

In 1907, the Chief Analyst passed from the earthly scene and was succeeded by his Chief Assistant, Dr. Anthony McGill, L.L.D., F.R.S.C. So far the only food standard in Canada was for tea. Those for other articles were long overdue. The establishment of such standards was the principal task facing the new Chief. These were much easier to talk about, in a world in which standards were to a large extent unknown, than to formulate. As Dr. McGill wrote on this point in 1909, "Injudicious precipitency must seriously hamper trade and bring discredit upon honest efforts for food control."

In order that so great a responsibility might not fall upon one individual, an advisory board was set up in 1909 to assist the Chief Analyst. It was also decided to send drafts to food manufacturers for comment so as to avoid friction later. The work

proceeded rapidly, as bulletins already published supplied much of the necessary data, and within two years, standards had been promulgated for meat and meat products, grain and grain products, milk and milk products, beverages, maple products and edible vegetable oils. The work went on, year after year, with occasional amendments to standards already promulgated, until practically the whole food field was covered. But regulations are never static; they must change as times and customs change, and so this work continues to this day. Drugs did not present the same difficulties then because standards were available in pharmacopoeias and similar works.

Again, increase in work demanded extra accommodation. After several years of contemplation, this was accomplished in 1910 by the building of an annex to the Queen Street premises. In January 1911, a disastrous fire, originating in the methylating warehouse, consumed the front part of the building but it was restored and in use again by the end of the year.

Shortly after 1900, suspicion of patent medicines began to gather strength, not only in Canada, but in Great Britain and in the United States as well. Some were declared to be merely liquor masquerading in this guise to evade excise duty. Others, such as headache wafers, were believed to be doing positive harm. Certainly people were being deceived by promises of a cure in really serious diseases. The matter was debated in Parliament on a number of occasions and eventually an Act was passed involving registration and control of such remedies. The legislation was much more successful than was expected and the statute which was amended once (in 1919) is still in force and continues to prove effective.



Old-time "Medicine Man" fooled some of the people some of the time.

AN ERA OF VISIBLE GROWTH

By 1912, the old system of district analysts had been abolished and samples from all over the country were being shipped to Ottawa. Such procedure involved delay and the decay of perishable goods. This was met by the establishment of branch laboratories at strategic point across the country. The first of these was opened in Halifax early in 1915. Shortly afterwards, two others were opened, one in Winnipeg and one in Vancouver. Each of these was staffed by two public analysts. In 1921, after considerable trouble in finding space, another was opened in Montreal and finally one in Toronto in 1928.

These outside laboratories comprehended a system of decentralization from the control centre in Ottawa and at the same time a degree of localized activity. The first analysts-in-charge, as they were then known, had already had experience at head-quarters and were thoroughly conversant with the operation of the Adulteration Act. Perishable food stuffs could be dealt with immediately and the former delays were eliminated. Later on, they were found very convenient indeed for examination of import

shipments of food and drugs.

The experiment, for such it was, proved eminently successful. In the annual report for 1916, the Deputy Minister remarked that, "this year's experience has conclusively proven the wisdom of the establishment of branch laboratories," and he went on to say that "such a step was in accord with the needs of the country." Each year the work was assuming greater importance. The public were relying more and more upon the publication of standards and bulletins, as guides. In fact the laboratory could

hardly keep pace with what was required of it.

A very interesting bulletin, No. 377, dated June 1917, and entitled "Human Food Considered in its Relation to Quantity and Cost", came out at a time when food prices were going up the ladder of inflation, although, in the majority of cases, the figures quoted were either less than, or much the same as, prevail today. Nevertheless, people, particularly those who had to work for a living, were worried as to how they could make both ends meet. The point of interest today is the fact that calculations were based entirely on calorific values while vitamins were disposed of in the following terse remark, "Vitamins are always present in natural foods and food materials." The great work in this field had scarcely begun when those words were penned.

In 1918, the Customs and Inland Revenue Departments were amalgamated under the name of the Department of Customs and Inland Revenue and, in the re-organization that followed, the



Miss S. E. Wright in the first Canadian food and drug laboratory.

administration of the Adulteration Act was transferred to the Department of Trade and Commerce. There it remained for about a year. In September 1919, on the establishment of the Department of Health, it became one of the most important of the units of the new Department, as the Food and Drugs Division.

For years, manufacturers and retailers of food and drug products had objected strenuously to their names being published in bulletins in connection with adulterated articles. The last such bulletin, No. 440, was published in 1920 and the Department of Health at that time was not impressed with the advantages of

publicity on such topics.

Hitherto the majority of inspectors employed were officers on loan from the Department of Inland Revenue. In 1918 an Order in Council established 25 inspection districts across the country and full-time inspectors were appointed during 1919 and 1920. These districts remained almost unchanged until recently when one or two new districts have been designated.

THE YEARS FOLLOWING THE FIRST WORLD WAR

The years 1919 and 1920 witnessed other legislative changes. Working defects and weaknesses in the Proprietary or Patent Medicine Act were ironed out in an amendment, in 1919, which limited the scope to human medication and provided for the establishment of an Advisory Board. The Fertilizer Act and the Commercial Feeding Stuffs Act, hitherto administered by the Food and Drug Laboratories, were placed under the jurisdiction of the Department of Agriculture. The Adulteration Act, which had been amended repeatedly over the years, was repealed in 1920 and was superseded by the Food and Drugs Act. This new statute laid down general principles and left details to be amplified by regulations. A distinction was drawn between adulteration, which affects the article inherently, and misbranding, which means misrepresentation in one way or another. Misbranding, however, was limited to food in 1920 and extended to cover drugs in 1927.

Dr. McGill retired in the summer of 1922, at the age of 75, and was succeeded the following Spring by Mr. H. M. Lancaster, a member of the teaching staff of the University of Toronto and Director of the Provincial Board of Health Laboratories



Once upon a time mysterious "blending" sometimes occurred.

there. During his regime further developments took place, particularly in the drug field. His main task, however, was to tighten up and consolidate regulations that had been made during the previous decade.

Some of the problems he had to tackle were, the presence of poisonous amounts of prussic acid in beans imported from Asia, excessive amounts of zinc in dried eggs and of arsenical spray residue on apples, preservatives in sausage, imported nuts containing worms, to mention but a few.

The Department of Health Act of 1919 provided for the establishment of a national laboratory for research in public health. This laboratory consisted of two main divisions, one of which was devoted to pharmacology and later was incorporated into the Food and Drug Directorate.

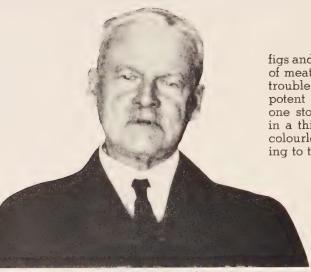
As noted above, it had been necessary to amend the Food and Drugs Act in 1927 to increase its effectiveness. In the amendment, provision was made for setting up specific Canadian standards for certain drugs, for the standardization of which animals had to be used, and for the licensing of establishments manufacturing such articles as antitoxins, viruses and other biological products. This resulted in a consolidation of the regulations in 1928, and these covered the new legislation.

The amendment dealing with the misbranding of drugs proved to be of some value in suppressing unwarrantable claims for medicines. The manufacturer of a dangerous goitre remedy was fined and put out of business. Suits were successfully entered against radio-active "cures", but, as will be seen later, the legislation was not successful in plugging all the holes.

During these years, the routine analysis of foods and drugs went on. Improvements were noticeable in the quality of



Modern food and drug analysis assures purity of products.



Dr. Anthony McGill, Chief Dominion Analyst, 1907-1923.

figs and nuts, but small manufacturers of meat products were continually in trouble for using preservatives. One potent medicine was found red in one store, purple in another, yellow in a third, pale pink in a fourth and colourless in a fifth. Most disconcerting to those who obtained supplies at

different stores!

The constitutional position of the Food and Drugs Act was raised in British Columbia. The Supreme Court of that Province upheld the validity of the Act on the basis of it being competent legislation in the field of criminal

law. So far as is known, this decision has not been challenged, nor has doubt been expressed concerning it, by any other court.

DURING THE GREAT DEPRESSION

The years of depression in the nineteen thirties demanded retrenchment and economy in every field of government activity. In 1930, the Food and Drug Laboratory in Ottawa was still housed in the rented building on Queen Street and three years later it was moved to its present location at the corner of John and Sussex Streets, in the New Edinburgh section of Ottawa. It was an old building which had been purchased by the Government some years previously and had been vacated by the National Research Council.

As pointed out above, the misbranding section of the Food and Drugs Act failed to meet the situation entirely and the Act was amended in 1934 with a view to protecting the public from remedies for serious conditions and diseases which require professional care in their early stages. Such diseases include, among others, epilepsy, cancer, diabetes, heart disease, tuberculosis and venereal disease. This measure has proven of incalculable value.

For years a vitamin laboratory had been under discussion. Vitamin therapy was increasing by leaps and bounds. It was becoming a sort of 'department' in many drug stores. The

claims made for vitamins were certainly extravagant. Early in 1937, the laboratory was ready for work; its purpose was to investigate claims and to assay products. During the past 13 years it has been responsible for such work and has made a great contribution towards the protection of Canada's people from fraud in the advertising of vitamins.

During these years a great deal of work was done, and rich experience gained, in the restraint of unwarrantable and often flamboyant claims by advertisers of foods and drugs. Cases were uncovered of the sale of potassium bicarbonate powders as a cure for cancer; of the selling for one dollar of a handkerchief which had been anointed, "prayed upon" at a certain hour, marked with the customer's name and disease, with instructions that, if applied to the source of trouble, "miracles" would happen. Herbalists called for special attention: catalogues resorted to passages of Holy Scripture, taken out of their context, to drive home their messages, these frequently concerning drugs which had been discarded by the medical profession on the ground of uselessness or which had merely a laxative action.

Today, radio broadcasting regulations require that commercials advertising foods or drugs be reviewed by the Department of National Health and Welfare before going on the air. This has involved much work during the last dozen years or so but it has been profitable for all concerned. The moderate tone of most Canadian advertising in this field stands out in sharp distinction to exuberant statements made for similar products elsewhere. The policy initiated by Canada of controlling such advertising has been adopted by other countries.

Meantime the Pharmacological Laboratory, under the leadership of the present Director, Dr. C. A. Morrell, was increasing in reputation and stature. Extensive investigations of assay methods for cardiac drugs, such as digitalis, had been carried out, which involved active collaboration with the United States Pharmacopoeia Revision Committee and cooperation with the British Pharmacopoeia Commission. In addition, much work had been done on ergot, pituitary, organic arsenicals and sex hormones and other drugs.

The experience gained in reviewing advertising clearly indicated the necessity for an additional clause in the Food and Drugs Act making it an offence to advertise a food or a drug in a manner likely to create erroneous impressions in the mind of the reading public. This was done in 1939 when the Act was amended and has since proved of great value in an administrative way.

When the Act was before Parliament, the opportunity was taken to extend its scope as regards drugs, which now include such items as sterile surgical materials, diagnostic materials, household chemicals and vermin killers used in food plants and stores. Cosmetics were also included but, in view of the Second World War, the section relating to them was not immediately put into force.



DURING THE SECOND WORLD WAR

The outbreak of the Second World War in September 1939, had little immediate effect upon the Food and Drug Division since its work is equally essential in war and in peace.

Quite early, however, the Commissariat of the Armed Forces was concerned about the quality of food supplied to the Government. The Division was called upon to analyse samples of consignments prior to acceptance. Along with this went the drafting of specifications for a number of foods, which the Division was well able to do from its experience in preparing regulations. All kinds of food were examined in this way, notably bread, which was sampled at regular intervals in every depot. One of the early problems submitted by the Navy was whether rye whisky could replace rum in ''splicing the main brace''. The answer was ''no''. Another task had to do with bakers' flavouring extracts for use in Army kitchens. Here the noses of all on the technical staff in Ottawa were pressed into service.

The same thing happened somewhat later in the drug field. In this case, the work was so great in volume, owing to large numbers of comparatively small purchases, that a special staff, attached to the Inspection Board of the United Kingdom and Canada, was employed. These years marked the development of sulphonamide therapy, the adolescence of penicillin and the birth of streptomycin. A great deal was learned from this systematic supervision and the knowledge has been carried into the days of peace.

In addition, problems of shortages arose. In 1940, Norway was cut off from contact with Canada and, as a result, we could not import Norwegian Cod Liver Oil. It is true that this gave great impetus to a young cod liver oil industry on the Atlantic coast, but conservation measures in restricting doses to what was needful were initiated by the Division. A lengthy investigation of means of producing caffein was undertaken and attention was called to native products as effective replacements for lost imports.

As might be expected, a lot of people conceived the idea that they could make a fortune growing, in Canada, drugs that hitherto were imported from war-ridden countries. They had to be gently reminded of Punch's advice to those about to marry—"Don't". There was much more in such a project than merely sowing seed (if one could get it) and waiting, in faith, for a bounteous harvest. By the time all the factors of soil, environment, yield and so on could be established, the war would be over and the period of demand and high prices past.

If numbers tell any story, there had been progress over the years, in spite of the depression. Samples averaged, from 1930 to 1933, about 16,000 annually; by 1938, there were 23,400; in 1940, the figure had jumped to 28,050, while the banner year was 1944, with 68,346, owing to a special investigation in Ottawa. Barring the last figure, these totals represent merely the work-a-day round of all six laboratories. There were no large surveys in hand necessitating purchases of many samples of similar articles, nor any impulse to record a high figure of total samples.

The broadening horizons of the sciences of pharmacology and biological chemistry were reflected in the laboratory activities. By the time the Second World War broke out, extensive work was being done on vitamins, liver oils and extract, and sex

hormones.

Commercial promotion of vitamin products had reached such a stage that some measure of control of claims and advertising was indicated. Scientific findings, many of which had not been properly established, were being adapted by commercial interests for their own ends and blazoned forth to the general public by word and picture in a manner that grossly misrepresented the facts. People were being confused by all this and led to expend money on proprietary foods and drugs in order to obtain vitamins which are present, anyway, in ample sufficiency in a well-selected diet. This situation called for regulations covering the advertising and sale of vitamins and, after prolonged negotiations, such regulations were promulgated in June 1941. Naturally, in so rapidly changing an environment, several amendments to these regulations had subsequently to be made.

Flour and bread also engaged much attention. A higher degree of refinement results in a flour with a lower nutritive value than in a darker flour containing more of the wheat berry. Steps had been taken in the United States to meet the demand for a white flour with high nutritive value by adding certain substances to compensate for the loss in refining, but, in regulations which were passed in 1942, this practice was prohibited and "Canada"

Approved" flours and breads were legalized.

Another step taken during the war years was the limitation of sale of certain potent drugs to prescription only.

Present day shoppers can buy groceries with confidence.

Import shipments of food and drugs are inspected.



These drugs include barbiturates, benzedrine, sulphonamides and thyroid, among others. Such substances either have a narrow margin between an effective and a poisonous dose or may produce undesirable effects if taken for long periods without competent supervision. This step has proved to have been a wise one.

The administrative policy of the Food and Drug Division during these years was summarized by the Honourable Ian A. Mackenzie in the House of Commons in 1940 under the following heads:

- to ascertain to what extent adulteration or misbranding in food and drugs exists in Canada and to suppress it;
- 2. to make corrections at the source;
- 3. unless health is actually menaced, to take all other possible remedial steps before prosecution;
- 4. not to make the retailer the victim.

By 1944, owing to return from war of many veterans and the launching of new social welfare activities, the Department of Pensions and National Health was becoming unwieldy. The Department of National Health and Welfare, to which the Food and Drug Division was attached, was created to embrace the expanding federal health services and to administer welfare measures, while the pensions machinery of the former department was incorporated in a new Department of Veterans Affairs.

TODAY AND TOMORROW

The time was now ripe for a considerable expansion in the Food and Drug Division. At a function held in Ottawa in 1945 at the time of Mr. H. M. Lancaster's retirement, the Honourable Brooke Claxton, Minister of National Health and Welfare, spoke of a million dollar health laboratory in Ottawa. The scheme remained dormant for some years owing to post-war economic conditions, but in 1948, land was secured and plans for a new food and drug laboratory drawn up. Meantime, the Laboratory of Hygiene, which had been accommodated at John Street, was moved to more suitable quarters in the West End of Ottawa and the new Food and Drug laboratory, as at present contemplated, will not provide space for the Laboratory of Hygiene. Since 1933, as the work expanded, extra buildings at John Street have been taken over and adapted for laboratory use, but by 1946 these were already bursting at the seams. The space vacated by the Laboratory of Hygiene was soon occupied by the Food and Drug Division, but, even so, this does not provide all the accommodation needed for efficient operation.

In 1946, after a year in which J. G. A. Valin, I.S.O. occupied the position of Chief Dominion Analyst, prior to his retirement after 45 years' service, Dr. C. A. Morrell became the new Chief.

Shortly afterwards, the Division was made a separate directorate, to include the Proprietary or Patent Medicine Division and the department's former Advertising and Labels Division, under the over-all direction of Dr. Morrell. The new Directorate consisted of four divisions, Administration, Laboratory Services, Inspection Services and Proprietary or Patent Medicines and had five regional offices, now known as Eastern, East Central, Central, West Central and Western, each under the supervision of a regional director.

Laboratory Services were divided into ten sections, Food Chemistry—Pharmaceutical Chemistry—Cosmetic Chemistry—Biophysics—Pharmacology and Toxicology—Vitamins and Nutrition—Animal Pathology—Physiology and Hormones—Biometrics—and Organic Chemistry and Narcotics, each section being headed by a person expert in his or her field. The Ottawa Laboratory was to be devoted almost entirely to work of an investigational character, such as the development of improved methods of analysis and biological tests, together with some fundamental research. The Ottawa Laboratory has made a good start in its new role. A great deal of work has been done on the sampling and analysis of imported nuts, dates, figs and other fruit so that a procedure can be developed which will ensure uniform results in any laboratory.

Inspection Services include reviewing of radio continuities, labels, circulars and other advertising, and a general oversight, in an advisory capacity, of all inspectors. It should be mentioned, moreover, that there is, in each region, a superintendent of inspection services who is responsible to the regional director. In addition there is a supervisory inspector whose task it is to co-ordinate inspection activities in the several regions and

generally to help to keep the whole machine running smoothly.

The ruling of the Supreme Court of Canada, in the Fall of 1948, that the ban on margarine, effective for so many years, was *ultra vires* of the Parliament of Canada, did not present any serious problems because it was found that regulations in force were adequate to deal with the situation.

The entry of Newfoundland into Confederation in April 1949, involved the establishment of an inspection office in St. John's under the control of the Eastern Office in Halifax.



Dr. C. A. Morrell, Director, Food and Drug Divisions and Chief Dominion Analyst.

During 1947 and 1948, the Food and Drug Regulations were thoroughly overhauled and brought up to date, effective May 2, 1949. The new edition is in loose-leaf form and so arranged that amendments can be inserted with ease. At the same time, the section of the 1939 amendment to the Act dealing with cosmetics, was proclaimed law.

Looking Ahead

So much for history. What of the days to come?
"Heaven from all creatures hides the book of fate,
Save for the page prescribed, our present state". (Pope)

Wisely has Providence so ordained. Were we to know all the chances and changes of this present life, we would be tempted to complacency if the prospects were bright, or to throw up our hands in despair if we were faced with a sea of adversity. Instead, we have been endowed with the graces of faith and hope.

But, looking back, the past has been a record of continuous development, sometimes rapid, at other times more slowly, but always forward. Human nature being what it is, a police administration, such as this undoubtedly is, will be required for the protection of the public as long as indifference, selfishness and greed are to be found upon the earth. This twentieth century bears an alarming likeness to the first of the Christian era. The fundamental outlines are the same, although the orientation may be different. Man may be less crude but more subtle in his ways—the last century has revealed that—but the underlying motives of advantage and mastery, without regard to equity, still remain: in too many instances the New Commandment is not being obeyed.

Moreover, the human population of the world is increasing in spite of the ravages of war. Medical science has extended the average span of life. Infant mortality is falling. New remedies for this and for that ailment are coming out every week. Ways soon may be found to deal with cancer and diseases of the heart. All these are factors which tend to increase population.

As the generations rise and fall, will the earth be able, from its yearly increase, to continue to feed these multitudes as they are nourished at present? Will the flesh of domestic animals, for example, be sufficient to supply all the protein required? Will dairy products go round? Will there be enough arable acreage for wheat, oats and barley? It may be that man will have to resort to the lowly yeasts for his protein, or for part of it—the yeast tank may have to supplement the meadow. These are thoughts we may well ponder.

Therefore it seems fair to predict that long after the present generation has folded its tents and departed, the Food and Drug Directorate will still be carrying on its salutory work. And, as the manufacture of food and drugs becomes more and more complex, so much more will Canadians be dependent on the protection food and drug control affords them.

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